CSU-X1

Spinning Disk Confocal Scanner Unit

Microscopy Systems

Features and Benefits

- 5,000 & 10,000 rpm disk options
- Image acquisition up to 2,000 fps
- Easy synchronization of exposure to disk speed
- Optional bright field bypass module
- FWHM Z section confacility of < =1.2 µm
- Optimized, Andor's specific, dichroic and emission filter pairs.
- The only CSU with Anisotropy

Ultra High Speed and High Resolution

The CSU-X1 from Yokogawa® is the premier solution for high speed - low photo toxicity imaging. Available in a wide range of configurations which include Manual and Motorized version which can facilitate Confocal Fluorescence imaging as well as Widefield bypass, DIC and Anisotropy, which is exclusive to Andor.

When performing simultaneous multi-colour experiments we recommend use of the TuCam dual cameras adapter, if a third camera is provided for three color experiments the third camera can be directly mounted to the CSU. See TuCam specification sheet for further details.

Specifications Summary

Speed	**Up to 10,000 RPM**
Imaging Speed	**Up to 2,000 FPS**
Excitation Wavelength	**405 – 647 nm**
Brightfield bypass	**Optional**
Second Port	**Optional**
Anisotropy Polariser	**Optional**
Scope Compatibility	**Nikon, Zeiss, Olympus & Leica (Upright and Inverted)**

System Specifications - CSU-X1

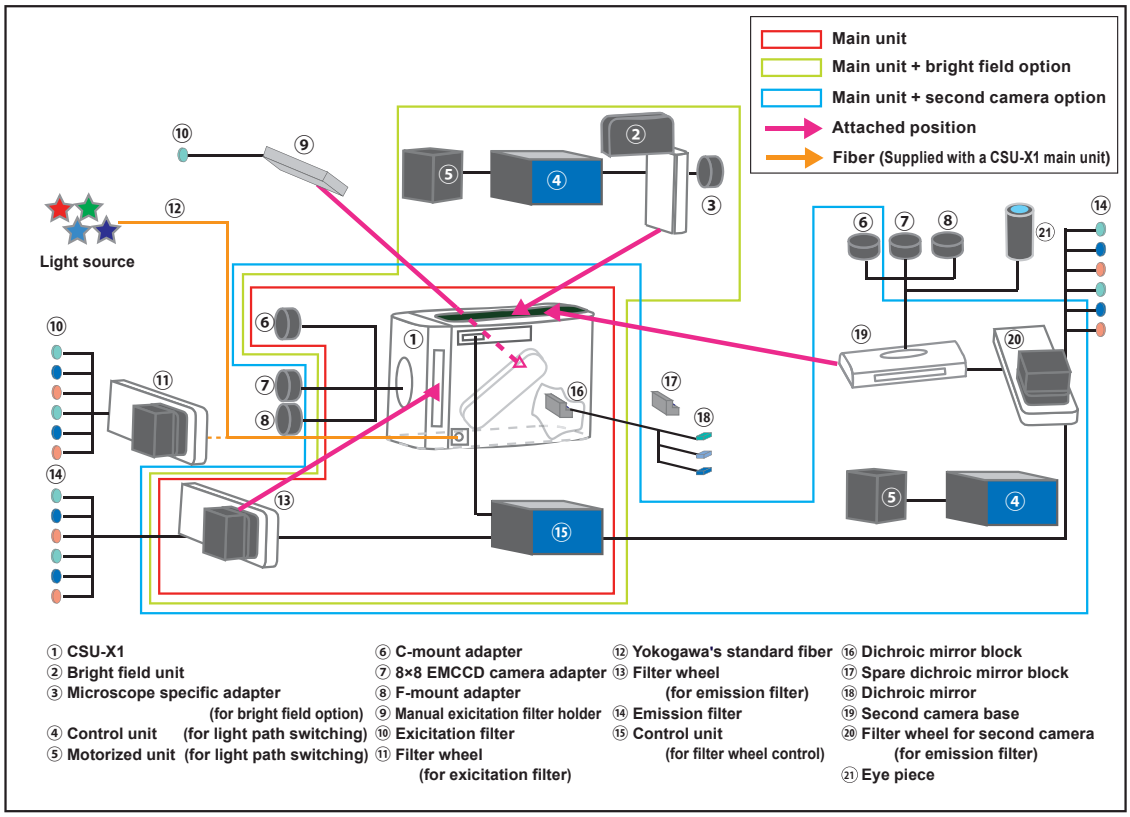
Type	Motorized CSU			Manual CSU	
Option	Main unit *1	Bright field*2	Second camera*2	Main unit	Bright field
Confocal scanning method	Microlens-enhanced Nipkow disk scanning				
Spinning speed	1,500 up to 5,000 rpm (Standard : max 1,000fps) 1,500 up to 10,000 rpm (High-speed : max 2,000fps)*3			1,800 rpm (Standard : max 360 fps) 1,500 up to 5,000 rpm (High-speed : max 1,000 fps)*3*4 1,500 up to 10,000 rpm (High-speed : max 2,000 fps)*3*4	
External synchronization	Scan-speed synchronization through pulse signals Input : TTL level 300 Hz up to 2 KHz Corresponding to Nipkow disk spinning speed 1,500 up to 10,000 rpm*3			-	
Excitation wavelength	405 up to 647 nm				
Second port	-	Bright field	Second camera	-	Bright field
Dichroic mirror	Option*5				
Dichroic mirror switching	Automatic 3CH (Dichroic mirror block can be exchanged)			Manual 1CH (Dichroic mirror block can be exchanged)	
Optical fiber	Standard single-mode polarization-maintaining supplied fiber with each CSU-X1 main unit				
Filter wheel (Emission side)	Filter wheel with six filter positions			-	
Emission filter	Option*5				
Anisotropy	Option				
Operation panel	Switch open / close of laser shutter				
External control	RS-232C interface via Control unit			-	
Microscope mount	C -mount adapter				
Power consumption (main unit)	24VDC 1A max.				
Power consumption (AC adapter)	Input : 100 up to 240 VAC ±10%, 50 or 60 Hz, 38W max. Output : 24VDC 1.6A max.				
External dimension	175(W) × 328.5(H) × 325.1(L) mm	258.8(W) × 373(H) × 325.1(L) mm	308.5(W) × 328.5(H) × 325.1(L) mm	175(W) × 328.5(H) × 177.5(L) mm	258.8(W) × 373(H) × 177.5(L) mm
Weight	9.4kg*7	11.4 kg*7	13.3 kg*7	7.5 kg*7	9.5 kg*7

Control Unit For CSU-X1

Type	For filter wheel (F1)	For bright field (B1)
Operating temperature range	15 up to 40ºC	
Operating humidity range	20 up to 75% RH	
External dimension	213(W) × 132(H) × 438(L) mm	
Weight	5.2 kg	5.1 kg

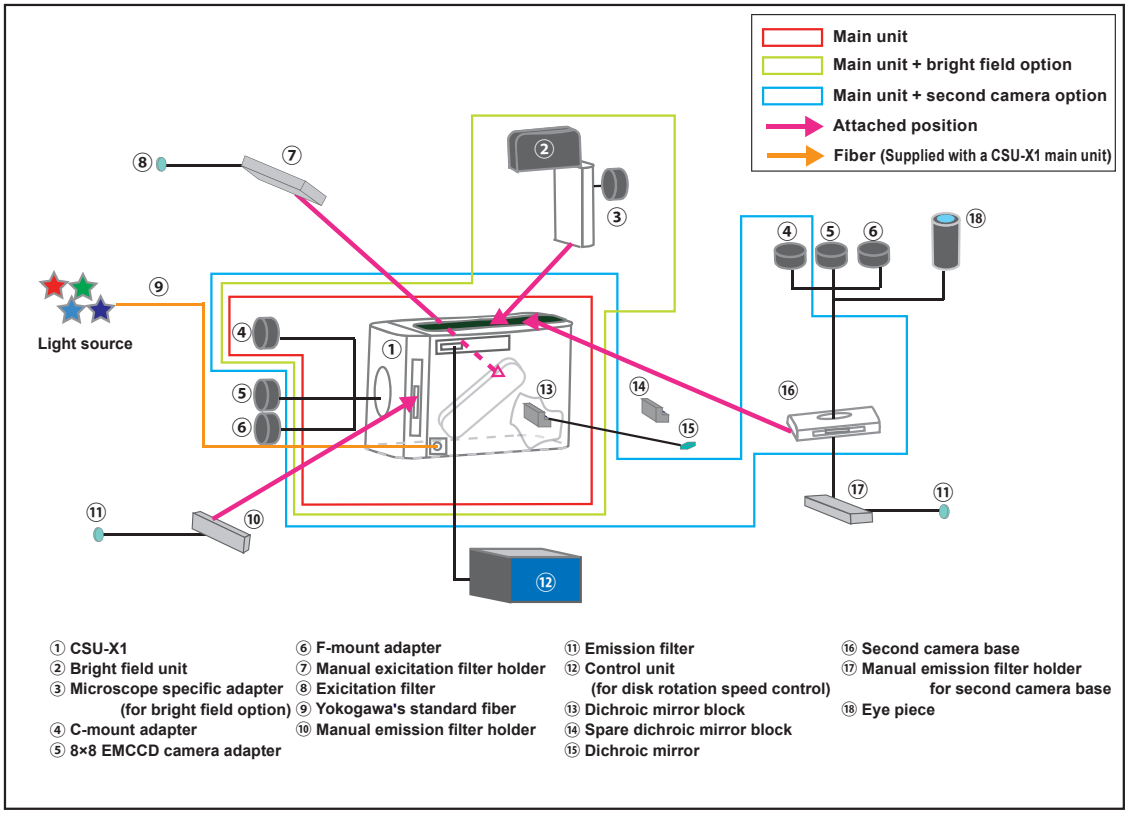
System Charts

Motorized


Main unit
Main unit + bright field option
Main unit + second camera option
Attached position
Fiber (Supplied with a CSU-X1 main unit)
Light source

① CSU-X1
② Bright field unit
③ Microscope specific adapter (for bright field option)
④ Control unit (for light path switching)
⑤ Motorized unit (for light path switching)
⑥ C-mount adapter
⑦ 8×8 EMCCD camera adapter
⑧ F-mount adapter
⑨ Manual excitation filter holder
⑩ Excitation filter
⑪ Filter wheel (for excitation filter)
⑫ Yokogawa's standard fiber
⑬ Filter wheel (for emission filter)
⑭ Emission filter
⑮ Control unit (for filter wheel control)
⑯ Dichroic mirror block
⑰ Spare dichroic mirror block
⑱ Dichroic mirror
⑲ Second camera base
⑳ Filter wheel for second camera (for emission filter)
㉑ Eye piece

Manual


Main unit
Main unit + bright field option
Main unit + second camera option
Attached position
Fiber (Supplied with a CSU-X1 main unit)
Light source

① CSU-X1
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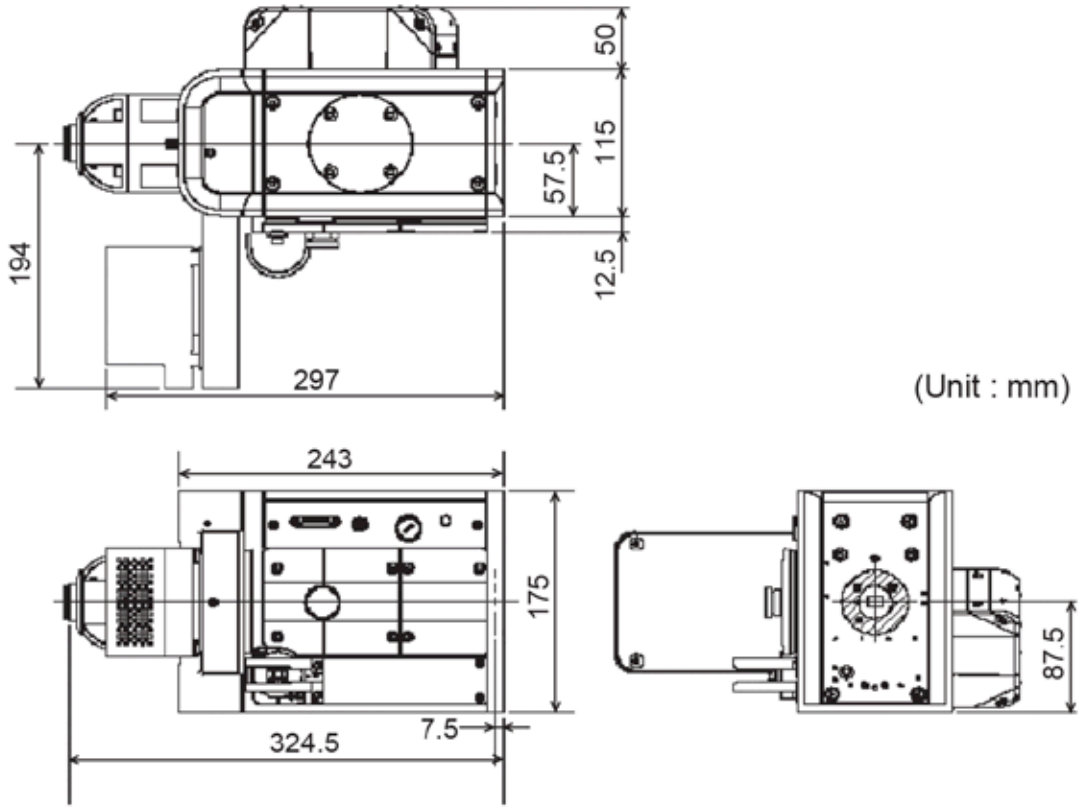
⑤ 8×8 EMCCD camera adapter
⑥ F-mount adapter
⑦ Manual excitation filter holder
⑧ Excitation filter
⑨ Yokogawa's standard fiber
⑩ Manual emission filter holder
⑪ Emission filter
⑫ Control unit (for disk rotation speed control)
⑬ Dichroic mirror block
⑭ Spare dichroic mirror block
⑮ Dichroic mirror
⑯ Second camera base
⑰ Manual emission filter holder for second camera base
⑱ Eye piece

Product Drawings

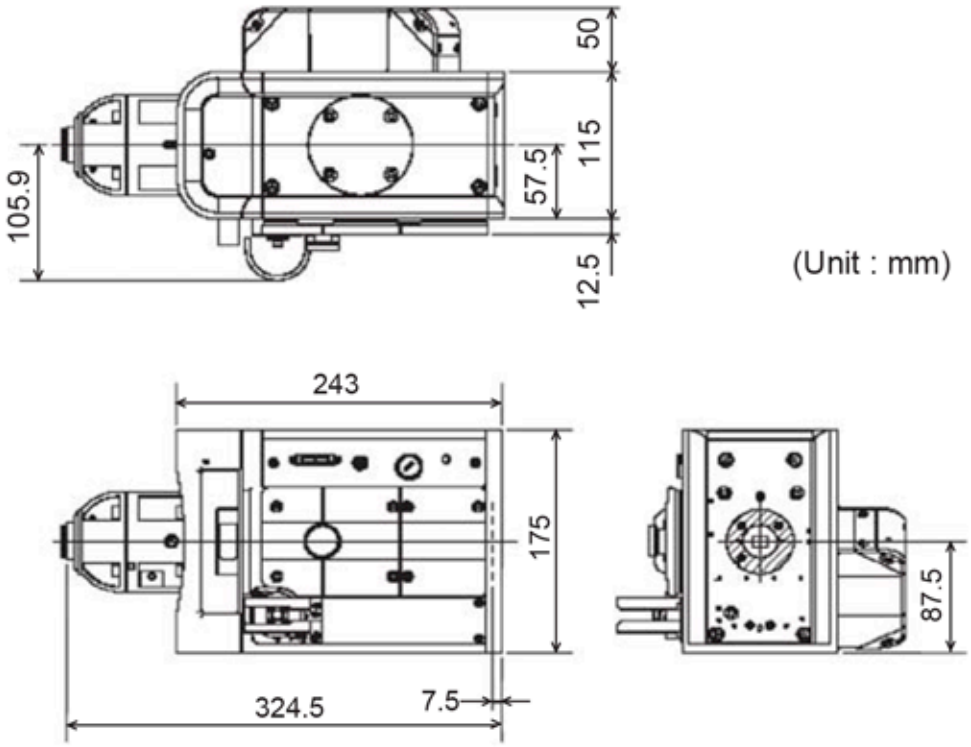
Dimensions in mm [inches]

Third-angle projection

Motorized



Manual



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Footnotes: Specifications are subject to change without notice

1. Supplied with a control unit (for filter wheel) and a filter wheel.
2. Supplied with two control units (one for filter wheel and one for bright field) and a filter wheel.
3. Option.
4. Requires control unit for rotation speed control and external synchronization.
5. Filters are not include (Excitation filter , Emission filter ,Dichroic mirror) . Please inquire as you need.
6. Excluding protruding parts.
7. Including filter wheel.
8. Power is supplied from control unit.

- Use of Infinity corrected microscope with high NA objective lenses (i.e., Plan Apo) are recommended.
- General specification are subject to change without prior notice. The standard model does not include any peripheral components such as a microscope, a laser unit, camera, image monitor, or image processing unit.

Safety Precautions

- Read the user's manual carefully in order to use the instrument correctly and safely.
- If used in combination with a laser light source, this product falls under the category of class 3B laser product. Do not look directly into the beam and avoid touching it or any other direct exposure to it.

System Specifications

Operating temperature range	15 up to 40ºC
Operating humidity range	20 up to 75% RH
Power consumption (main unit)	24VDC 1A max.
Power consumption (AC adapter)	Input : 100 up to 240 VAC ±10%, 50 or 60 Hz, 38W max. Output : 24VDC 1.6A max.

Control Unit

Operating temperature range	15 up to 40ºC
Operating humidity range	20 up to 75% RH
Power consumption (main unit)	Input : 100 up to 240VAC ± 10%, 50 or 60 Hz, 200VA max.

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